

**CLAIMS**

**What Is Claimed Is:**

- 5           1.     A system for use with implantable cardiac stimulation  
devices comprising:  
              a plurality of programmers operative to program operations  
              of implantable cardiac stimulation devices and to process  
              information received from implantable cardiac stimulation devices;  
10           and  
              a programmer backup system coupled to the plurality of  
              programmers and operative to backup and synchronize information  
              used by the programmers.
- 15           2.     The system of claim 1 wherein the programmer backup  
system synchronizes information used by the programmers by receiving  
information from the programmers, automatically merging the received  
information from the programmers, and selectively transmitting the  
merged information to the programmers for use therein.
- 20           3.     The system of claim 2 wherein the programmer backup  
system is operative to transmit the merged information either periodically,  
on-demand, or substantially continuously.
- 25           4.     The system of claim 2 wherein the programmer backup  
system is operative to detect any inconsistent information received from  
the programmers that cannot be merged automatically.

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5. The system of claim 1 further comprising a browser system connected to the backup system through the Internet and operative to display and modify information stored within the backup system.

5 6. The system of claim 1 wherein at least one of the programmers is operative to display and modify information stored within the backup system.

10 7. The system of claim 1 wherein the plurality of programmers are classified into one or more groups and wherein the programmer backup system is operative to synchronize information only among programmers within a particular group.

15 8. The system of claim 1 wherein the information to be synchronized is classified into one or more types of information and wherein the programmer backup system is operative to synchronize only selected types of information stored within the programmers.

20 9. The system of claim 1 wherein the programmer backup system is operative to backup and synchronize one or more of programmer software data, programmer setup and configuration data, physician preferences for setup and configuration data, programming parameters, patient personal data, implantable device diagnostic data, and patient diagnostic data stored within the programmers.

25 10. The system of claim 9 wherein the programmer software data comprises programmer software for controlling the programmers.

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11. The system of claim 9 wherein the programmer setup and configuration data comprises data for controlling the operation of the programmer software.

5 12. The system of claim 9 wherein the patient personal data comprises patient medical histories and patient contact information.

10 13. The system of claim 9 wherein the implantable device diagnostic data comprises device diagnostic information transferred from one of the implantable cardiac stimulation devices to a programmer pertaining to the operation of the implantable cardiac stimulation device.

15 14. The system of claim 9 wherein the patient diagnostic data comprises patient diagnostic information transferred from one of the implantable cardiac stimulation devices to a programmer pertaining to the patient.

20 15. A backup and synchronization system for use with a plurality of programmers for programming implantable cardiac stimulation devices, the system comprising:

means for receiving information from the programmers;  
means for backing up the information received from the .  
programmers;  
means for synchronizing the information received from the  
25 programmers; and  
means for selectively transmitting synchronized information  
to the programmers.

30 16. The backup and synchronization system for of claim 15 wherein the means for synchronizing information received from the

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programmers operates to automatically merge information received from different programmers, with the information merged so that recent information supercedes older information.

5           17.    The backup and synchronization system of claim 16 wherein the means for synchronizing information detects any inconsistent information received from the programmers that cannot be merged automatically.

10           18.    The backup and synchronization system of claim 16 further comprising browser means, connected to the backup system through the Internet, for displaying and modifying information stored within the means for storing of the means for synchronizing information.

15           19.    The backup and synchronization system of claim 16 wherein the plurality of programmers are classified into one or more groups and wherein the means for synchronizing operates to synchronize information only among programmers within a particular group.

20           20.    The backup and synchronization system of claim 16 wherein the information to be synchronized is classified into one or more types of information and wherein the means for synchronizing operates to synchronize only selected types of information stored within the programmers.

25           21.    The backup and synchronization system of claim 16 wherein the means for synchronizing operates to synchronize one or more of programmer software data, programmer setup and configuration data, physician preferences for setup and configuration data,  
30   programming parameters, patient personal data, implantable device

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diagnostic data, and patient diagnostic data stored within the programmers.

22. The backup and synchronization system of claim 16  
5 wherein the means for synchronizing operates to synchronize information periodically, on-demand, or substantially continuously.

23. A method for synchronizing information stored within a plurality of programmers provided for programming implantable cardiac stimulation devices, the programmers being classified in groups, the  
10 method comprising the steps of:

receiving information from the programmers from various groups;

synchronizing the information received from the  
15 programmers, wherein the information to be synchronized is classified into a plurality of types of information and wherein synchronization is based on the type of information and on the programmer group; and

selectively transmitting the merged information to the  
20 programmers.

24. The method of claim 23 wherein the step of synchronizing information comprises the step of detecting any inconsistent information received from the programmers that cannot be merged.

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25. The method of claim 23 wherein the plurality of programmers are classified into one or more groups and wherein the step of synchronizing is performed to synchronize information only among programmers within a particular group.

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26. The method of claim 23 wherein the step of synchronizing is performed to selectively synchronize one or more of programmer software data, programmer setup and configuration data, physician preferences for setup and configuration data, programming parameters, patient personal data, implantable device diagnostic data, and patient diagnostic data stored within the programmers.

27. The method of claim 23 wherein the step of synchronizing is performed either periodically, on-demand, or substantially continuously.

28. A system for use with implantable cardiac stimulation devices, the system comprising a plurality of programmers that are adapted for communication with the implantable cardiac stimulation devices, and a central system that is in communication with the respective programmers, the central system being operative to receive data from multiple programmers and to process the data to create a set of merged data for use by the programmers.

29. The system of claim 28, wherein the central system is operative to transmit the set of merged data to each programmer.

30. The system of claim 29, wherein the central system is operative to continuously transmit the set of merged data to each programmer.

31. The system of claim 29, wherein the central system is operative to periodically transmit the set of merged data to each programmer.

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32. The system of claim 29, wherein the central system is operative to transmit the set of merged data to each programmer on demand.

5 33. The system of claim 28 wherein the central system is operative to synchronize information used by the programmers by receiving information from the programmers, automatically merging the received information from the programmers, and selectively transmitting the merged information to the programmers for use therein.

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34. The system of claim 28 wherein the central system is operative to transmit the merged information either periodically, on-demand, or substantially continuously.

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35. The system of claim 28 wherein the central system is operative to detect any inconsistent information received from the programmers that cannot be merged automatically.

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36. The system of claim 33 wherein the plurality of programmers are classified into one or more groups and wherein the central system is operative to synchronize information only among programmers within a particular group.

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37. The system of claim 33 wherein the information to be synchronized is classified into one or more types of information and wherein the central system is operative to synchronize only selected types of information stored within the programmers.

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